

INNOVATIVE APPROACH TO THE ASSESSMENT OF THE COMPANY'S INTELLECTUAL CAPITAL

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ABSTRACT

It was determined that the objects of formation of the intellectual capital of an enterprise are human, information, managerial and client capital, without which the existence of an enterprise on the market is impossible. As a result of the study, it was established that there is a relationship between all the components of intellectual capital, the result of their interaction is a synergistic effect, which allows an enterprise with a high level of intellectual capital to receive additional benefits and super-profits. The existing methods of intellectual capital assessment are analyzed and peculiar scientific and methodical approach is proposed, providing for a comprehensive assessment of all components of intellectual capital and the calculation of the integral index.

Keywords: Intellectual Capital, Capitalization, Structural Approach, Integral Index, Potential.

JEL Classifications: M21, Q2.

INTRODUCTION

World experience shows that the effectiveness of any process depends on how developed, demanded and implemented intellectual capital are, taking into account its expanded reproduction, since the strategic importance of the latter is to ensure the competitiveness of both the individual and society as a whole. The presence of substantial intellectual capital of a modern enterprise is one of the main and determining competitive advantages that ensure stable development of the enterprise and consolidation of its position in the market by increasing competitiveness, since the effective use of intellectual capital enhances other competitive advantages and contributes to the formation of new ones.

In the paper (Ozkan et al., 2017), the authors note that for the formation and reproduction of intellectual capital from all the intellectual resources of an enterprise, only those are selected that have the potential for development and are able, under certain conditions, to create additional value and competitive advantages. As a result of using motivational tools, intellectual potential is transformed into intellectual capital, which has a dynamic characteristic, that is, resources with potential for development provide additional value and competitive advantages for a certain period of time and can change their form (Dzenopoljac et al., 2017).

On the basis of the selected criteria for innovative development, in the process of study it was revealed that intellectual capital, along with investments, infrastructure and economic structure by type of activity, is one of the key factors of innovative development of the country's economy. It carries out both direct and indirect influence on innovative development in the

following areas: transition to a new technological order by creating high-tech innovative competitive products; increase in the efficiency and productivity of workers; reduction of energy and material production; formation of an innovative type of thinking and innovative culture; change in the structure of demand in the labor market-there is a growing demand for highly skilled workers who can quickly adapt to changing conditions; creation of new markets; bankruptcy of noncompetitive enterprises; establishment of a high price monopoly for innovative products etc.

The complexity and limitations of the use of traditional methods in the assessment of intangible assets, the specific nature of individual components of intellectual capital and the lack of a single universal method for its assessment necessitate additional studies and the formation of unified approach to the assessment of intellectual capital.

REVIEW OF PREVIOUS STUDIES

So, depending on how the intellectual capital of the company and its elements are assessed, the following approaches are distinguished (Ramadan et al., 2017):

1. Structural approach, which is based on the use of different units of measure for each element of intellectual capital; does not provide for a total valuation; used in non-financial models.
2. Cost approach is used to determine the total value of the company's intellectual capital, while the value of its individual components is not calculated.

In modern conditions, in the absence of a universal methodology for intellectual capital assessment, it is fully justified to use both of the above approaches.

In determining the value of the intellectual capital of the enterprise as a whole, we use value indexes. At the same time, depending on the particular situation, we use cost, income and market approaches (Nakashydzze & Gil'orme, 2015).

According to the income approach, the value of intellectual capital is equal to the discounted stream of income that is expected to receive during the entire period of use of this capital (Tetiana et al., 2018a).

The cost approach assumes that the value of a particular asset is equal to: either the amount of expenses that were previously incurred to create or acquire it, or the amount of expenses required to acquire a similar asset in modern conditions (Tetiana et al., 2018b).

But this method has very limited use in intellectual capital assessment, since the results of expenses in the research and development field are unpredictable and do not have a direct connection with investment volumes: sometimes substantial expenses remain futile, and sometimes a little effort is enough to make a brilliant discovery, which will significantly improve the position of the organization in the market and increase profits.

The market approach provides for an assessment of the value of a certain asset at the cost of similar assets, bought and sold on the market (taking into account possible differences). This approach gives quite accurate results, but has limited use. It can be applicable only to those elements of intellectual capital that have analogues. In practice, it is sometimes possible to use these approaches in combination (Bontis et al., 2018).

METHODOLOGY

Methods for calculating the return on assets are based on the calculation of the difference between the ratio of the income of a business entity for a certain period of time (net of taxes) to the value of its tangible assets and that of the industry as a whole (Obeidat et al., 2017). The product of the difference obtained by the value of the tangible assets of an estimated business entity is the average income from intellectual capital. Then, by direct capitalization or discounting of the received cash flow, the value of its intellectual capital is determined.

Methods for measuring intellectual capital are developed to better understand the nature of all types of intangible assets, as well as to create a logical theory that explains how such assets should be identified and measured in order to accurately assess the value of an organization (Zambon, 2017; Kita & Šimberová, 2018). It is assumed that the refinement of market estimates of their value will lead to the optimization of capital flows and, as a result, will increase the efficiency of a market economy.

RESULTS AND DISCUSSION

We determined to assess the intellectual capital using a structural approach, which includes an assessment of each individual component (human, organizational, client and information capital) and the calculation of the integral index of the level of intellectual capital of an enterprise. Based on study, we have formed a system of indexes for each of the components of intellectual capital.

In the opinion of the author, intellectual capital should be considered as a set of human, organizational, client and information capital, which interact with each other.

We proposed to consider human capital as a combination of such personnel characteristics as knowledge, skills, experience in a particular industry, level of education, health care, quality of life, moral values, work culture (responsibility, integrity, and focus on results, mutual support, and mutual substitutions) involved in the production and commercial activities of the enterprise for the purpose of profit. Table 1 presents indexes for the assessment of human capital (ICc) as a component of intellectual capital.

No. in sequence	Index name	Symbol	Characteristics
1	Index of the educational level of the enterprise personnel	ICc1	Educational level of the enterprise personnel.
2	Coefficient of personnel constancy	ICc2	Degree of stability (wear) of a team of highly skilled workers.
3	Engineering and Scientific Support Index	ICc3	Potential ability of enterprise personnel to solve engineering and scientific and applied problems.
4	Inventive Activity Index	ICc4	Ability to generate new knowledge (technical and technological solutions), which can be the basis of innovation.
5	Knowledge Update Index	ICc5	Compliance of the level of knowledge of worker employees with modern requirements (retraining and advanced training of workers).

6	Share of employees with experience in the company for more than 5 years	ICc6	Degree of fixation of employees in the enterprise.
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Information capital is a combination of intellectual property rights; documents certifying intellectual property rights; hardware and software; scientific and methodological materials; access to special databases of scientific developments and inventions; research and development works that allow the company to create competitive products and get a profit. Table 2 presents the indexes for the assessment of information capital (ICi) as a component of intellectual capital.

No. in sequence	Index name	Symbol	Characteristics
1	Share of manufactured products based on intellectual property, the rights to which are enshrined in the relevant documents belonging to the company.	ICi1	Degree of implementation of research and development results in the production process.
2	Index of security objects of intellectual property	ICi2	Number of developments and discoveries made by employees of the enterprise during the year, as well as patents acquired and sold (transferred copyright, etc.).
3	Licensed program coverage index	ICi3	Provision of computers with licensed programs necessary for uninterrupted and effective work of employees.
4	Information Accessibility Index	ICi4	Level of enterprise access to databases of scientific developments, innovations, etc..
5	Share of investment in research and development	ICi5	Ability of the enterprise and its financial soundness to be engages in research activities.
6	Index of work site computerization	ICi6	Availability of computers at employees' work sites.

Agreeing with the opinion (67), we will consider “*client capital*” as a system of capital, reliable, long-term trusting and mutually beneficial relations of an enterprise with its customers, buyers of the goods that have developed during its work in the market. Table 3 presents the indexes for the assessment of client capital (ICk) as a component of intellectual capital.

No. in sequence	Index name	Symbol	Characteristics
1	Cost-effectiveness on the formation of a positive image of the company (brand)	ICk1	Return on investment in the formation of a positive image of the company in order to consolidate the position of the enterprise in the market.
2	Share of loyal customers	ICk2	Degree of commitment and customer confidence to the company.
3	Share of manufactured products using trademarks	ICk3	Availability and degree of use of the brand to recognize the company on the market.

4	Percentage of clients that form the image of the company	ICk4	Relationships with customers who have a good reputation (or have well-known brands) and form an image.
5	Cost-effectiveness of marketing activities to attract new and retain old customers	ICk5	Profitability from measures in order to build a customer base (customers attracting and retaining).
6	Customer retention index	ICk6	Degree of customer satisfaction with the implementation of the first order and stability of relations with customers.

The most accurate definition of organizational capital is presented in (Nielsen et al., 2017)-these are organizational capabilities of a company that must meet market needs-forms, methods, and structures that allow you to effectively select, create and distribute knowledge, organize them into a system accessible to all employees, make it possible to achieve synergies from joint activities. Table 4 presents the indexes for the assessment of organizational capital (ICo) as a component of intellectual capital.

Table 4			
INDICES OF ORGANIZATIONAL CAPITAL ASSESSMENT (ICo) AS A COMPONENT OF INTELLECTUAL CAPITAL			
No. in sequence	Index name	Symbol	Characteristics
1	Percentage of personnel participating in festive, sports, creative and other events held by the company during the year to strengthen team spirit	ICo1	Initiative and activity of employees in the formation of the corporate culture of the enterprise.
2	Management profitability index	ICo2	Management efficiency of enterprise managers.
3	Index of profitability of the enterprise from the use of trademarks	ICo3	Level of profitability of the enterprise from the products sold using trademarks.
4	Share of investment in management improvement	ICo4	Level of investment in the improvement of the enterprise management system.
5	Index of deviations in the enterprise	ICo5	Negative influence on the general state of corporate culture of the enterprise and takes into account the following factors: absenteeism (evasion from participation in elections, meetings); complaints of consumers; complaints of employees of the enterprise; other complaints (for example, violation of obligations by the authorities); lack of manufactured products; mistakenness in making managerial decisions; inefficient functioning of the enterprise; violation of production and trade rules.
6	Percentage of man-hours lost due to insufficiently management actions or a poor climate in the team: downtime, strikes, industrial conflicts	ICo6	Problems in the work of the enterprise and negative trends in management.

As a result of the study, it was established that there is a relationship between all the components of intellectual capital, the result of their interaction is a synergistic effect. We believe that in general, in the management of intellectual capital, a synergistic effect arises on the basis of a combination of all its components and their elements with a certain influence of factors of the marketing environment of the enterprise.

We propose to determine the valuation of intellectual capital at the company level (micro level) using a multidimensional average, which, given the non-aggressiveness of intellectual capital, can be calculated using the following formula:

$$Z_{IC} = \sqrt[4]{Z_{ICc} \times Z_{ICo} \times Z_{ICk} \times Z_{ICi}} \quad (1)$$

Where,

Z_{IK} -integral index for assessment the value of intellectual capital at company level (micro level).

Z_{ICc} -general index of human capital.

Z_{ICo} -general index of organizational capital.

Z_{ICk} -general index of client capital.

Z_{ICi} -general index of information capital.

To calculate the indexes and the integral index, it is determined to use a modified geometric mean formula, since this approach allows for calculations in cases where at least one of the partial coefficients is zero, because otherwise the integral coefficient will also have a zero value.

It was proposed to identify three levels of intellectual capital of an enterprise: high (sufficient for accelerated growth of the enterprise), medium and low (insufficient, one that can cause damage) (Table 5).

Z-index value	Level of intellectual capital	Characteristics
$0.67 \leq Z \leq 1$	High	Sufficient for accelerated growth of the company.
$0.33 \leq Z < 0.67$	Medium	Sufficient to ensure the stability of the company.
$0 \leq Z < 0.33$	Low	Insufficient, one that can cause damage.

CONCLUSION

According to the results of the assessment, a complex of measures aimed at increasing the level of intellectual capital is being formed. After their implementation, the assessment of the intellectual capital of the enterprise is recommended to be repeated.

Thus, the use of this method of intellectual capital assessment will allow to reveal the current state of intangible assets, to track the dynamics of their development or aging, identify strong and weak points, to choose the most appropriate strategy for intellectual capital management, and as a result, to respond to changes in the internal and external marketing environment of enterprise in a timely manner.

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